
IDA

INSTITUTE FOR DEFENSE ANALYSES

**The US Commission on National Security/
21st Century ("Hart-Rudman")
Overview and Observations on Phase I**

James S. Thomason

December 2000

Approved for public release;
distribution unlimited.

IDA Document D-2541

Log : H 00-002774

Copy

20010309 019

This work was conducted under IDA's independent research program.
The publication of this IDA document does not indicate endorsement by
the Department of Defense, nor should the contents be construed as
reflecting the official position of that Agency.

© 2000, 2001 Institute for Defense Analyses, 1801 N. Beauregard Street,
Alexandria, Virginia 22311-1772 • (703) 845-2000.

This material may be reproduced by or for the U.S. Government.

INSTITUTE FOR DEFENSE ANALYSES

IDA Document D-2541

**The US Commission on National Security/
21st Century (“Hart-Rudman”)
Overview and Observations on Phase I**

James S. Thomason

Preface

This document was prepared under the Institute for Defense Analyses Independent Research Program as a public record of a briefing provided by the author to IDA members on November 23, 1999, at the conclusion of the first phase of the United States Commission on National Security for the 21st Century.

The author wishes to thank Mr. Michael Leonard for reviewing the briefing, Mrs. Jackie Evans and Mrs. Leslie Norris for their fine help in preparing the manuscript, and Ms. Shelley Smith for her thoughtful editorial review.

Contents

Preface	iii
Summary	S-1
I. Background	
The U.S. Commission on National Security/21st Century: "Hart - Rudman"	1
USCNS/21: Origins and Organization	3
USCNS/21 Staff (NSSG): Phase I	5
Products, Funds, Approach	7
Selected Press Coverage	9
II. Commission Findings: Phase 1	
A New World Coming: Key Themes	13
Commission's Phase 1 Conclusions	17
How Did Commissioners Come to Agree?	19
Supporting Research and Analysis	21
<i>Global Dynamics</i>	
Science and Technology	25
Internet Usage is Accelerating	27
The Net Age: Wide Variations	29
Biotechnology	31
Biotech	33
Smarter Mouse Traps Needed by 2025	35
Micro-Electro-Mechanical Systems (MEMS)	37
Five-Level Layering Promises more Reliable, Complex Micromachines	39
Cog	41

S&T Futures Downsides	43
Economic Futures	45
Increased International Travel	47
Global/Regional GDPs (1998–2025) (1998 \$ in Trillions)	49
Poverty and Population, 2025?	51
Baseline Socio-Political Future	53
Some Possible Socio-Political Futures	55
The Map of Freedom 1999	57
Global Political Conditions (1998–2025)	59
Military-Security Futures	61
Porous Borders	63
Ebola Zaire	65
Pandemics: Not Just Terrorism	67
<i>A World Astir</i>	71
<i>U.S. Domestic Future</i>	81
<i>Worlds in Prospect</i>	85
III. Looking Ahead	
Toward Phase 2	95
What's New?	97
NDP: "Transforming Defense—National Security in the 21st Century"	99
What's New: Hart - Rudman Commission	101
Observations	103

Summary

The US Commission on National Security for the 21st Century—informally known as “Hart-Rudman” for its co-chairs, former senators Gary Hart and Warren Rudman—was chartered by Defense Secretary William Cohen in the summer of 1998 to study several critical national security issues. In September of 1999 the commissioners provided the Secretary with their first (Phase I) report, which seeks to characterize the future security environment the United States will face over the next 25 years. The author served as a full-time member of the senior study group supporting the commission during Phase I. In this briefing he first describes highlights and some supporting details of the Commission’s Phase I work. Next he offers his views on what the Commission has added to the national security debate. The author concludes with several observations regarding the likely contributions by the Commission and its senior study group in the remaining phases of their work.

I. Background

The US Commission on National Security/21st Century: ‘Hart-Rudman’



The US Commission on National Security for the 21st century—informally known as “Hart-Rudman” for its co-chairs, former senators Gary Hart and Warren Rudman—was chartered by Defense Secretary William Cohen in the summer of 1998 to study several critical national security issues. The commissioners have now provided the Secretary with their first report. In it they have come to some important conclusions. As a member of the senior study group of the commission, I am pleased to have the opportunity to share with IDA colleagues the highlights and some supporting details of this work. My plan is as follows: a bit of background on the Commission’s origins, charter and organization; then some “press takes” from the Phase 1 Press Conference; a look at the commissioners’ key themes and findings; some highlights from the study group’s Supporting Analyses; a look ahead toward Phase 2; my take on What’s New Here? and a couple of concluding observations regarding Phase 2 and beyond.

Two years ago, in the fall of 1997, then-Speaker of the House Newt Gingrich proposed to the President and the Secretary of Defense a comprehensive study of the emerging US national security environment as well as of the appropriate national security strategy and organization for it. He also proposed that Congress fund the study and provide the specific mandate. Several months later Secretary Cohen decided to charter the study himself, to fund it from his own study budget, and to supervise it. The formal charter was published in July 1998. The SecDef's specific rationale for the study, and the Commission, is distilled here.

Five tasks are deemed crucial. The charter for the study calls for task 1 to be conducted in Phase 1, the second and third tasks in Phase 2, and the final two in Phase 3. For this effort, the Secretary assembled a *bipartisan* group of distinguished Americans to serve as Commissioners.

There are now 14 commissioners, the co-chairs and a dozen others. Some of their career highlights are indicated here. Details may be found at the Commission's Web site. Note that two IDA Board members are serving on the Commission: Gen John Galvin and Adm Harry Train. And there is Amb Anne Armstrong, Norm Augustine, John (Bud) Dancy, Les Gelb, Newt Gingrich, Lee Hamilton, Lionel Olmer, Don Rice (former secretary of the Air Force, and chief executive officer of Autogenesis), James Schlesinger, and Amb Andrew Young. All in all an eminent group, with active current jobs and varied backgrounds. [By the way, former Speaker of the house Gingrich was not originally planning to be a commissioner. You may recall that soon after the Nov. 1998 elections he had a bit more time on his hands. Before long he was invited by Mr. Cohen to join the group. He accepted immediately and has been an active participant ever since.]

The commissioners also have a staff.

USCNS/21:Origins and Organization

Origins

Late 1997: Gingrich initiative

Early 1998:

Secretary of Defense decides to charter and fund study

SecDef's Rationale

America should advance its position as a strong force for freedom and progress. Thus, there is a requirement to:

- 1) Assess the early 21st century security environment
- 2) Determine US strategic interests and objectives
- 3) Build a national security strategy
- 4) Identify options to implement the strategy
- 5) Develop plan to implement options

Commissioners (9/99)

Gary Hart (Chair)

Warren Rudman (Chair)

Anne Armstrong (Amb to UK)

Norm Augustine (U Sec Army/

CEO Lockheed Martin)

John Dancy (Sr Corresp NBC)

John Galvin (Gen/SACEUR)

Les Gelb (Pres CFR)

Newt Gingrich (Spkr of House)

Lee Hamilton (Congress)

Lionel Olmer (U Sec Commerce)

Don Rice (Sec of AF)

James Schlesinger (SecDef, DCI)

Harry Train (Adm/CINCLNT)

Andrew Young (Amb to UN)

Ret'd Air Force Gen Charles "Chuck" Boyd serves as the Executive Director of the National Security Study Group (NSSG). His most senior staff members for the first phase included Arnold Punaro, Hank Scharpenberg, Doc Pentland, and Lynn Davis.

For analytic support the Secretary invited, again on a bipartisan basis, two dozen or so individuals to join a senior study group. Without naming any particular names, I'd like to say that many in this group are also quite distinguished Americans—expert in various aspects of national

security—scholars, former ambassadors (including former ambassador to Saudi Arabia and current IDA Board member Chas Freeman), retired military officers, former career intelligence and Foreign Service officers.

I was honored to serve with them.

USCNS/21 Staff (NSSG): Phase 1

Executive Director

Gen Charles Boyd
(USAF, Ret'd)*

Deputy Director

Arnold Punaro

Chief of Staff

Hank Scharpenberg*

Phase 1 Study Director

Lynn Davis

Study Coordinator

Pat Pentland*

Study Group

Patti Antsen*

Lyntis Beard*

Jeff Bergner

Coit Blacker

Barry Blechman

Chris Bowie

Ivo Daalder

Jackie Davis

Rhett Dawson

Keith Dunn*

Chas Freeman

Adam Garfinkle*

Richard Haas

John Hillen*

Frank Hoffman*

Richard Kohn

Bill Lewis

Martin Libicki

Jim Locher

Charles Moskos

Wick Murray

Barry Posen

Peter Rodman

Barbara Samuels

Kori Schake

Jim Thomason*

Ruth Wedgwood

* Full-time

The 5 tasks fall into 3 phases, as shown on the top left. With reports on this schedule ...funded to the tune of \$10.5 million, spread over four fiscal years, with three-quarters of the work in FYs 1999 and 2000....Here's a summary of the overall Phase 1 research plan and schedule. Which key areas? Science and Tech; Economics; Socio-Political; and Military-Security Affairs. Some of you may recognize the "knowns, trends, and uncertainties" terminology from the Royal Dutch Shell strategic planning literature. The Bottom line for Phase 1? Develop a plausible range of futures.

The Phase 1 Schedule: The Commissioners were sworn in by the venerable Doc Cook and convened at their first meeting on Oct 6, 1998, at the Pentagon. Secretary Cohen gave them their mandate. Still as Speaker, Newt Gingrich described his vision for the study. The Nat'l Intelligence Council was invited to present and did offer the results of its study *Global Trends 2010* to the commissioners. The co-chairs gave their guidance. And so... with this charter, staff, funding, and broad research plan, the study was off and running.

The Rollout: 11 months later—after a variety of conferences, fact-finding trips (to Europe, Russia, East Asia, South Asia, and the Middle East, as well as many parts of the United States), and a number of analytic efforts, the Commissioners produced a Phase 1 report—actually two reports—An Executive summary, which all the commissioners named earlier signed up to, and the “Supporting Analyses.” In particular, several hours after delivering their report to the SecDef, the commissioners released their Exec Summary to the press at the National Press Club in DC on Sept. 15, 1999. Shortly thereafter, the Supporting Analyses Report was issued. And soon after that, Co-Chairs Hart and Rudman testified before the House Armed Services Committee (HASC).

Following is a sampling of the press coverage, key themes picked up by the *Defense Week*, *New York Times*, and others, as well as the part that especially caught the attention of the chairman of the HASC, Mr. Spence.

Products, Funds, Approach

**Co-chairs shall submit reports to
Sec Def**

**Phase 1 (Security Environment)
by 8/99**

Phase 2 (Strategy) by 4/00

Phase 3 (Implementation) by 2/01

Funded by DoD: \$10.44 Million

FY 1998--\$1.43 M

FY 1999--\$3.76 M

FY 2000--\$3.73 M

FY 2001--\$1.52 M

Phase 1 Research Plan

- Establish knowns, trends and uncertainties in key areas
- Identify plausible futures
- Develop scenarios, wild cards

Phase 1 Schedule

- 1st Commissioners' Mtg, 10/98
- Quarterly Meetings
- Conferences, Trips, Research
- Phase 1 Report

Phase 1 Report "Rollout"

- 9/15/99: Executive Summary/
Press Conference (NPC)
- 9/20/99: Supporting Analyses

The *Times* said: This report makes grim predictions about crises and threats at home and abroad. ... That the country "will be vulnerable to an increasing range of threats against American forces and citizens overseas, as well as at home," from terrorists or rogue states. "While conventional conflicts will still be possible, the most serious threat to our security may consist of unannounced attacks on American cities" by terrorist groups using germ warfare." "OR, a well-planned cyberattack on the air traffic control system on the East Coast of the United States as some 200 commercial aircraft are trying to land safely in a morning's rain and fog." The *Times* continued: "The commission goes on to say that the United States is not prepared to defend itself against terrorist threats at home."---NYT, 9/21/99.

Co-chairs Hart and Rudman testified before the (HASC) shortly after the study's release. And the

report clearly caught the attention of the Committee Chairman. "Particularly troubling," said Mr. Spence, "is the Commission's contention that over the next 25 years, as a result of the proliferation of weapons of mass destruction, Americans will likely die on American soil, possibly in large numbers." The press noted, too, that the Commissioners did not focus only on terrorist or rogue nation threats, or even exclusively on military threats. Said *Defense Week*: "A commission set up by the DoD and endorsed by the White House" [says] "the US must broaden its definition of national security to include economic as well as military threats." ...These are some principal themes highlighted by the press, and by Chairman Spence. But what did the commissioners themselves cite as key themes and conclusions?

Selected Press Coverage

Federal Commission Predicts Increasing Threat Of Terrorism

“The report makes grim predictions... the country will be ‘vulnerable to an increasing range of threats overseas, as well as at home,’ from terrorists or rogue states.

‘.. the most serious threat to our security may consist of unannounced attacks on American cities by terrorist groups using germ warfare.’ Or ‘A ...well-planned cyber-attack on the air traffic control system.’
...’the United States is not prepared.’

New York Times 9/21/99

Study: Foreign Economic Turmoil Threatens US Security

“The US must broaden its definition of national security....Foreign economic crises

... could pose as much of a threat to national security in the next 25 years as nuclear, biological and chemical weapons....”

Defense Week 9/20/99

Hart-Rudman Commission: US Faces Homeland Attacks

“Particularly troubling is the ... contention that ‘...Americans will likely die on American soil, possibly in large numbers.’” --Floyd Spence, Chmn, HASC.

Aerospace Daily 10/6/99

II. Commission Findings: Phase 1

In the next century, the spread of knowledge, the development of new technologies, and an increasing recognition of common global problems will present vast opportunities for economic growth, regional integration, and global political cooperation. Authoritarian regimes will increasingly founder in...A world brimming with free-flowing information, new economic opportunities, and spreading political freedoms. The size of the world's middle class may increase many times over, and...

However fragile, this process holds the hope of less conflict in the world than exists today. Indeed, Humanity has an unprecedented opportunity to "succor" its poor, heal its sick, compose its disagreements, and find new purpose in common global goals.

But, the full promise of the next century may never be realized, for the reasons shown here:

- Greater global connectedness can lead to an increased possibility of backlash and misfortune.
- Failure of major states could produce calamity on a worldwide scale, including a Pandora's box of lethal weapons open to ruthless actors.
- Economic downturns may become more systemic and fully global in their harmful effects.
- Isolated epidemics could metastasize into global pandemics.
- The explosion in scientific discoveries and technologies, misused by despots, could become a tool of genocide on an unprecedented scale.

A New World Coming: Key Themes

- **World ahead: vast opportunities**
 - Spreading political freedoms
 - Much larger global middle class
 - Major progress on disease, education
 - Less large-scale conflict
- **Promise not assured**
 - Political, cultural rivalries, animosity
 - Breakdown of major states, institutions
 - Increasingly lethal weapons in hands of less deterrable actors
 - Economic crises more fully global
 - Global pandemics
 - Science a tool of genocide

Making the most of positive possibilities will require concerted action by the United States and many others, especially the mature democracies. American engagement cannot prevent all problems, but wise policies can mitigate many of them.

The United States and governments of kindred spirit must work harder to both prevent conflicts and respond to them. In this effort, and during this period, US leadership will be crucial.

Key Themes (cont'd)

■ Realizing promise requires concerted action

- The US cannot prevent all problems
- Wise policies can mitigate
- US and kindred spirits must work harder to prevent conflicts and respond

■ US leadership crucial

- American moment will not last forever
- Rare when dominant global power seeks neither territory nor political empire
- The US has heavy responsibility

Beyond the themes just highlighted, the commissioners also highlighted a number of conclusions. Really 13 challenges, and one conclusion regarding what will be needed to deal with them.

- 1) America will become increasingly vulnerable to hostile attack on our homeland, and our military superiority will not entirely protect us.
- 2) Rapid advances in information and biotechnologies will create new vulnerabilities for US security.
- 3) New technologies will divide the world as well as draw it together.
- 4) The national security of all advanced states will be increasingly affected by the vulnerabilities of the evolving global economic infrastructure.
- 5) Energy will continue to have major strategic significance.
- 6) Borders will be more porous; some will bend and some will break.
- 7) The sovereignty of states will come under pressure, but will endure.
- 8) Some states will fragment or fail—with major destabilizing effects.
- 9) Foreign crises will be replete with atrocities and the deliberate terrorizing of civilian populations.
- 10) Space will become a critical and competitive military environment.

11) The essence of war will not change (there will be savagery and carnage).

12) US intelligence will face more challenging adversaries, and even excellent intelligence will not prevent all surprises.

13) We will be called on often to intervene militarily amidst uncertain alliances and the prospect of fewer forward-deployed forces.

14) The emerging security environment in the next quarter century will require different military and other national capabilities (e.g., dealing with unconventional threats).

These, then, are the commissioners' own principal themes and Phase 1 conclusions. Basically they recognize

- The acceleration of S&T; diffusion of power, knowledge, and a proliferation of opportunities for good and for evil—The need to find the right tools to cope—not just military tools, but the US ability and obligation to make a difference: we should seize the historical moment and lead the way—through great challenges—toward the brighter of the possible futures for the country and the world

So how did they arrive at these themes and conclusions?

Commission's Phase 1 Conclusions

- | | |
|---|--|
| 1. Greater homeland vulnerability | 9. Atrocities will abound |
| 2. New kinds of vulnerabilities | 10. Militarization of Space |
| 3. New divisions | 11. War's Essence Unchanged |
| 4. Greater global economic vulnerability | 12. US to face more challenging adversaries |
| 5. Energy still a major strategic issue | 13. US will be asked often to intervene militarily, with uncertain alliances and fewer forward-deployed forces |
| 6. More border problems | |
| 7. State sovereignty, under pressure, will endure | 14. Different military (and other) capabilities will be required |
| 8. Fragmentation or failure of some states | |

The commissioners came to agree in more or less the usual way—through a number of steps, including expert briefs, fact-finding trips, conferences, supporting analyses, drafts for discussion teams, and consensus building. One important basis was provided by the supporting analyses of the senior study group. As Senators Rudman and Hart put it:

“The Supporting Analyses Report represents the culmination of our Phase 1 efforts. We trust it will prove to be the sturdy foundation we need to build the rest of the study. We believe it is that foundation.”

How Did Commissioners Come to Agree?

- Information Briefings
- Fact-finding Trips
- Expert Conferences
- Supporting Analyses
- Drafts for Discussion
- Consensus Summary Report

The supporting research and analysis has four major parts: Global Dynamics, Regional Assessments, US Domestic Future, and Worlds in Prospect by 2025.

There is a lot of vivid material that I would like to be able to show you from the report, and even more from which the study group drew—conferences, trips, in-depth interviews. Here, I can touch only very lightly on some of it.

Supporting Research and Analysis

- **Global Dynamics**
 - Science & Technology
 - Economic
 - Socio-political
 - Military-security
- **A World Astir**
 - Greater Europe
 - East Asia
 - Greater Near East
 - Sub-Saharan Africa
 - The Americas
- **US Domestic Future**
 - Socio-political
 - Technological
 - Economic
 - Values, attitudes, national will
 - Trends affecting national security
- **Worlds in Prospect**
 - A Democratic peace
 - Protection and nationalism
 - Globalization triumphant
 - Division and mayhem

Global Dynamics

The S&T team conducted a wide range of discussions, with IT specialists, biochemists, physicists and engineers—people from CDC, NIH, NIST, a range of universities, many R&D firms. The group concluded, not surprisingly, that many fundamental S&T advances are underway. The team believes that a major shift in paradigms of scale is underway: from research and construction at the *massive* scale of the Industrial era to increasingly intense work at the *very small* scale. They chose three major exemplars for the report:

- 1) Vastly more capable, interconnected computers and electronic infrastructure, exploiting exceptionally rapid progress in building more capabilities into a given size electronic package; huge improvements in medicine, dealing with disease, through genetic improvements; and a revolution in MEMS.
- 2) The group sees change accelerating in at least two hugely important ways---BOTH in new, cutting edge developments AND in the diffusion of findings and technology worldwide.

- 3) With accelerating change on these dimensions, the S&T team sees our capacity to anticipate the timing of specific developments diminishing and S&T diffusing faster and faster, connecting formerly relatively distinct political and economic units, including buyers and sellers, at a breathtaking pace.

At the same time, the team sees wider opportunities for misuse of increasingly available technologies, from arms to computer viruses, and the full gamut of WMD and of WM Disruption. This potentiality entails thorny ethical issues on even a larger scale than today, arising in areas such as bioengineering, sales of cloned body parts, shocking and careless human and animal research in certain parts of the world.

Here are a few basic Illustrations from IT, BIOTECH, and MEMS.

Science and Technology

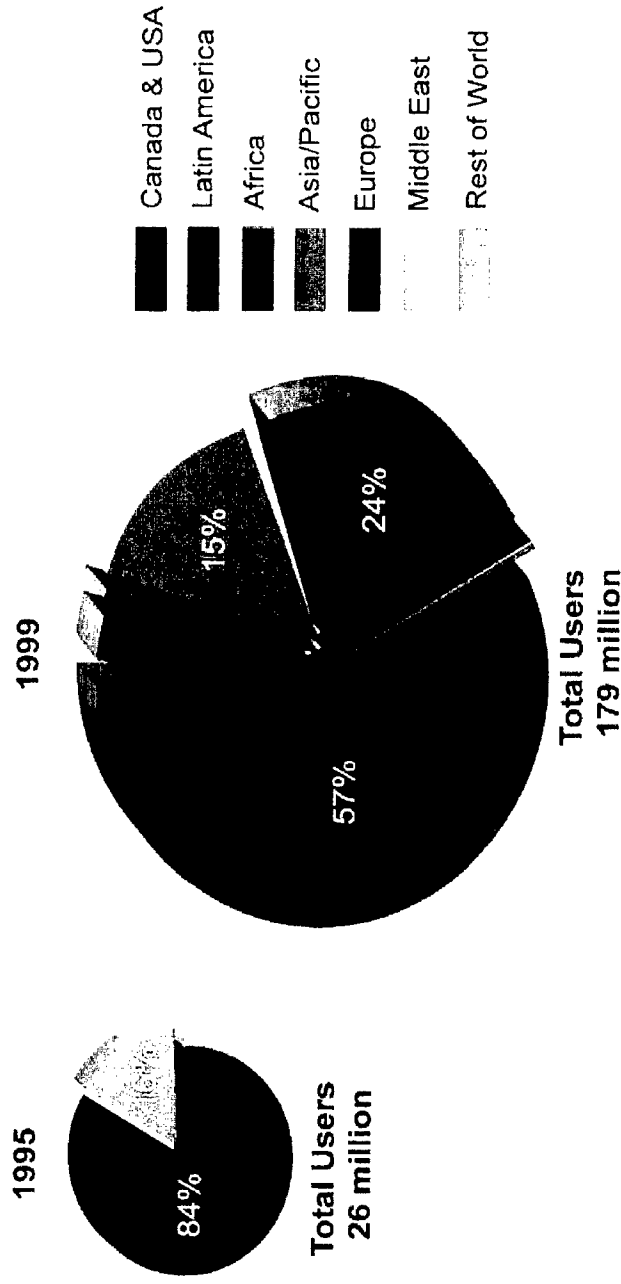
- Many advances will occur
- Most striking innovations will occur in three basic categories
 - Information Technology
 - Biotechnology
 - Micro-Electro-Mechanical Systems (MEMs)
- The pace of change is accelerating
- Capacity to anticipate specific developments is shrinking
- Diffusion of many technologies is a mixed blessing
- Hard ethical issues will arise

Recent growth in Internet usage has been extraordinary. Four years ago, there were about 26 million Internet users worldwide. This year, there are roughly seven times that many (180 million), with more users in the Asia Pacific region alone today than there were worldwide 4 years ago; 3 times as many in North America as globally in '95. It's not just the numbers of users. It's also the increasing sophistication of use.

And it's not just country-by-country. It's the transnational, global effects and possibilities both on the positive side—passing knowledge on, widening horizons, making markets, stimulating innovation worldwide, new medical and other scientific breakthroughs—and on the negative side—facilitating international crime, terrorism, and faster and faster diffusion of information and technology that may be used for destructive purposes.

Internet Usage is Accelerating

Internet Users Are Increasing



Source: NUA Internet Surveys/NUA Analysis.

“The Web is allowing us to transcend geographical boundaries and create communities based on shared interests” --Tim Berners-Lee

By 2025, or well before, there is major potential for real-time, high-speed connectivity all over the globe, an increasingly thick, sophisticated net. And yet, access will vary widely. By 2025, a great many global citizens—billions of impoverished children and adults still will not have even *learned to read, or made their first phone-call*, much less been “on the net.” These are what I call the NO-NETTERS amidst this increasingly connected world of 2025.

Thus, there will be huge IT advances but great differences in access to the internet.

Now a second area of awesome future possibilities will surely be Biotechnology.

Someone recently said: In the 5 million years since we hominids separated from apes, our DNA has evolved less than 2%. But in the next century we'll be able to alter our DNA radically, encoding our visions and vanities while concocting new life forms.

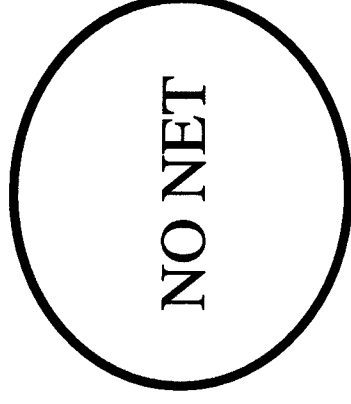
The Net Age: Wide Variations



Steve Eick / Visual Insights

By 2025 or before, there may well be real-time, high-speed connectivity everywhere on the globe....

...Yet by 2025, many global citizens may still be unable to read or may not have made their first phone call, much less been “on the Net”



Here's Dolly, the Scottish ewe clone, at her coming out party 2½ years ago (Reuters).

And then, within just 4 months ... scientists were already announcing they had created a lamb with a *human gene* in every cell of its body.

In another stunning line of related development, consider... Organogenesis' Apligraf living skin construct. Here Apligraf is being lifted from its shipping dish. Apligraf may be the first to gain FDA approval in this arena, but we can be certain that many more products will have followed Organogenesis' lead by 2025.

Biotechnology

Feb 23, 1997: Hello Dolly!



**July 25,
1997:
Four
Months
Later...
Lab Yields
Lamb
With
Human
Gene**

Living Skin Construct



**Apligraf®, launched in US
in June 1998**

In May 1999, Dr. Francis Collins, director of NIH's share of the human genome project, told scientists meeting at the Cold Spring Harbor Laboratory that the impending completion of the genome is the most important organized scientific effort that humankind has ever attempted.

The publicly financed effort to decode the human genome is racing to finish a first draft of the genome sometime in 2000.

Just last month Harvard researchers reported creating the first atomic-level resolution image of a doughnut-shaped enzyme that unwinds the DNA double helix to expose its genetic letters for DNA replication. It may look like a Toys-R-US deluxe Ninja throwing knife, but here are six individual helicase proteins in their ring-shaped motor that does the hard, micro-level work of unwinding the DNA helix for replication.

And on still another genetic front, researchers at Princeton in September 1999 created a strain of genetically engineered mice with an extra gene called NR2B.

Biotech

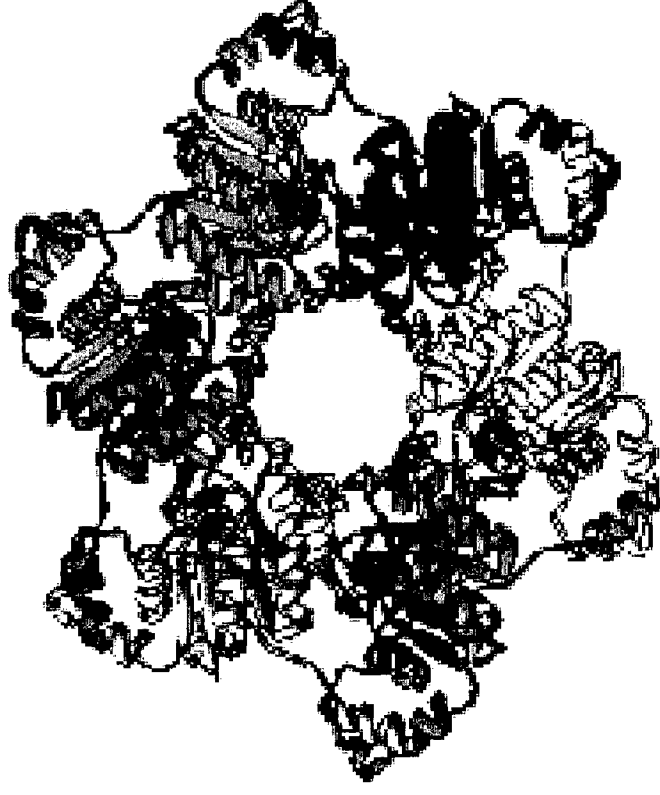
May 1999

*Decoding of Human Genome
Likely to Be Finished Soon*

“The publicly financed effort is now 10 percent complete, and on track to finish a first draft of the genome a year from now, officials of the NIH said”

Oct. 1999

*Blueprint Made of Machine That
Splits DNA*



With mice like this out and about, can a market for smarter mousetraps be far behind? [Here a so-called “Doogie” mouse, after the TV character genius Doogie Houser, stands on an object used in a learning and memory test.]

Smarter Mouse Traps Needed by 2025

September 1999

Researchers at Princeton University have created a strain of genetically engineered mice with an extra gene called NR2B

The gene triggers production of extra amounts of a receptor for the neurotransmitter NMDA (N-methyl-D-aspartate) in the forebrains of the animals.



A "Doogie" mouse stands on an object used in a learning and memory test

Other than information technology and biotechnology, a third area—MEMS—was cited by the Commission's S&T group for special attention.

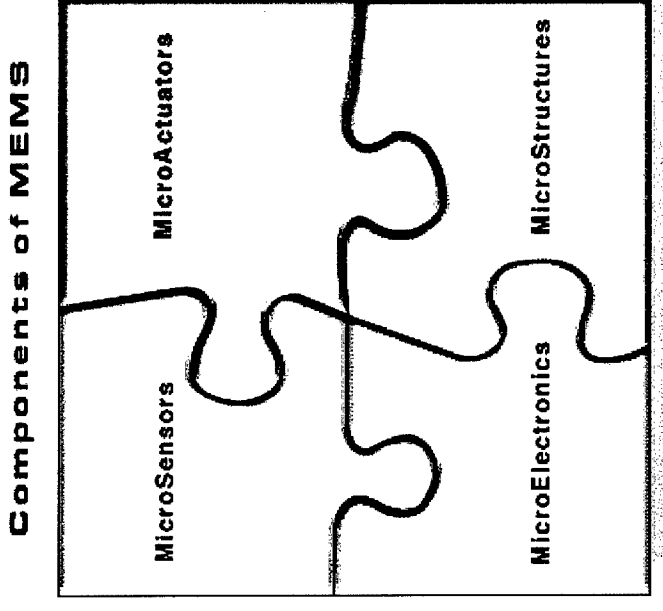
The study group believes that MEMS, like the other two areas, will have astoundingly, pervasive effects over the next several decades and beyond.

Just 2 months ago, for example, Sandia Lab researchers revealed their newest innovation, the so-called Five-level Ratcheting System.

Micro-Electro-Mechanical Systems (MEMS)

The integration of mechanical elements, sensors, actuators, and electronics on a common silicon substrate through the utilization of micro-fabrication technology.

Promises to revolutionize nearly every product category by bringing together silicon-based microelectronics with micromachining technology, thereby, making possible the realization of complete **systems-on-a-chip**.



<http://www.mems-exchange.org/MEMS/what-is.html>

Note the scale, the sizes involved. Twenty of these can fit on the period in a newspaper sentence.

I bet some of you saw—on the front page of a recent *Washington Post*—how a mere dust mite dwarfed such gears.

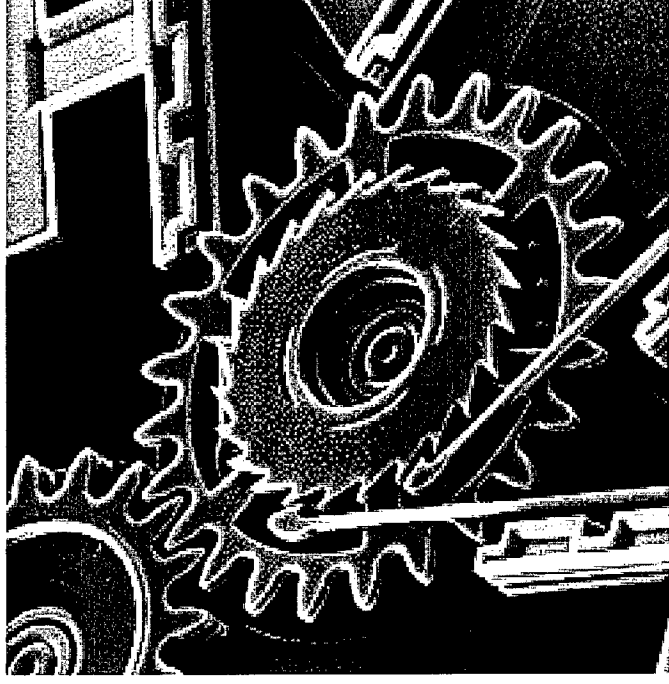
There is a vast array of potential MEMS applications...

Before Christmas the USAF will launch a fleet of tiny experimental satellites made of miniature components. NASA hopes to have a constellation of 100 nano-satellites, weighing as little as 2 pounds each, launched by one rocket on a single mission in 2008.

Five-level layering promises more reliable, complex micromachines

This image shows a ratcheting system that was fabricated using the five-level technology.

Twenty of these gears fit on a period in a newspaper sentence



**September 1999
Sandia**

Not just another proverbial cog in a machine, this one is an embodied AI robot “living” in his own shop in Cambridge.

Cog may soon be taking advantage of MEMs himself.

Many other S&T areas will be extremely important too—treatments for disease, materials science, energy research—batteries and hydrogen sources, robotics more generally, lasers, and others besides.

With them all, as I mentioned, there are sure to be downsides.

Cog

The Cog Shop
MIT Artificial
Intelligence
Laboratory
Cambridge, MA

<http://www.ai.mit.edu/projects/cog/>

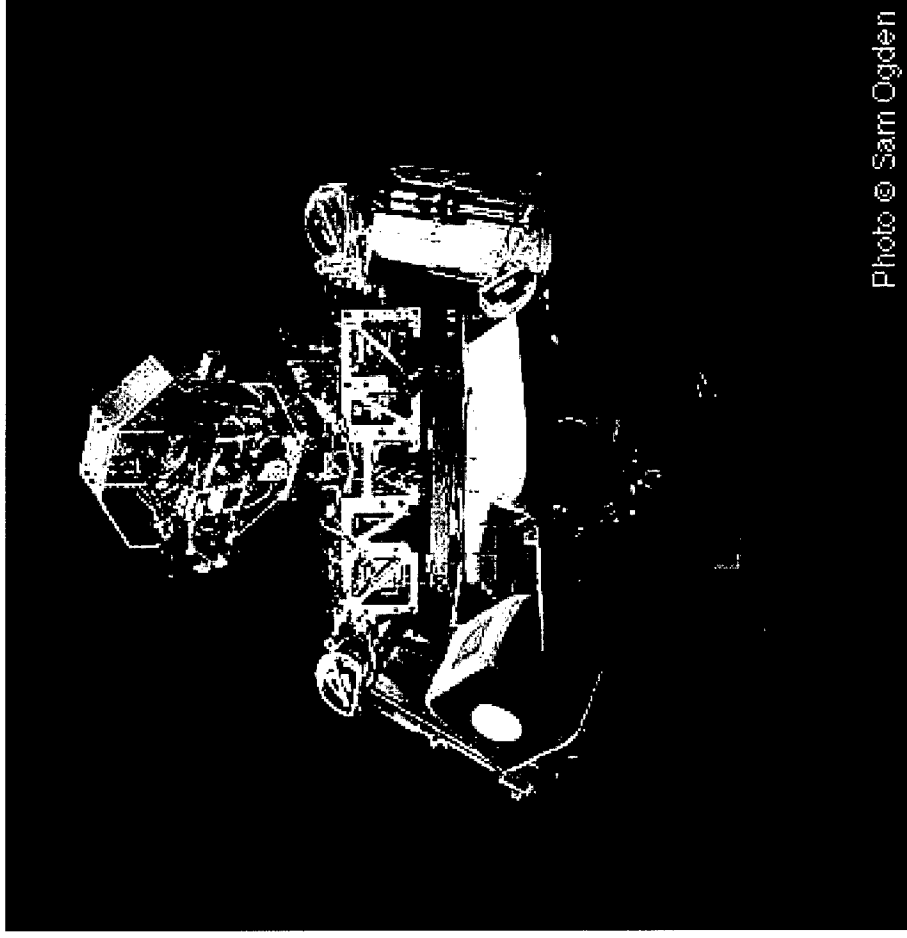


Photo © Sam Ogden

Science and Technology can, as ever, be used for ill as well as good. The Net Age is accelerating the opportunity for people all over the world to learn about, and to acquire, increasingly sophisticated, frequently lethal technologies.

Open societies such as the US are very vulnerable to theft of S&T knowledge. With IT and MEMS, applications of far smaller scale, it will be increasingly easy to move them across borders, both for good and for ill.

Formerly technologically capable states, if failing or anarchic, may be especially easy sources of lethal S&T.

As always, we can be sure that unscrupulous individuals, and groups, will seek to exploit these ideas and items.

These negatives, these risks, must of course be constantly addressed from a security standpoint, searching for effective ways to limit them, as I understand the DSB Globalization Task Force has called for recently as well.

But S&T developments and effects will just as surely offer unprecedented opportunities for medical advances, the diffusion of knowledge, tremendous efficiencies in communication, and higher levels of cooperation as well as huge opportunities for productivity gains and real economic growth, globally, over the next several decades.

S&T Futures Downsides

- Globalization accelerates diffusion
- Open societies very vulnerable to theft of S&T
- Failing/criminalized/laissez-faire states with technologies easy sources
- Increasingly lethal, capable technologies, including arms, available for a price
- Ruthless individuals, groups, leaders able to engage in horrific experiments (e.g., biotech), blackmail, genocide

Virtually all the economic specialists surveyed for this analysis project some degree of real growth globally. And they also project a very decent chance of a dramatic, continuing explosion of international capital flows, major increases in the numbers and size of market participants, and very strong, real global economic growth.

The study group concluded that the global economic integration and interdependence trends underway could well be qualitatively different from earlier episodes, with potentially extremely far-reaching positive consequences over the next 25 years.

At the same time, this global growth, and increased connectedness, will also create greater vulnerabilities for the US.

There will also be significant pockets of resistance around the world to this ongoing economic and associated cultural integration—in developed as well as developing countries—and some very sobering undersides.

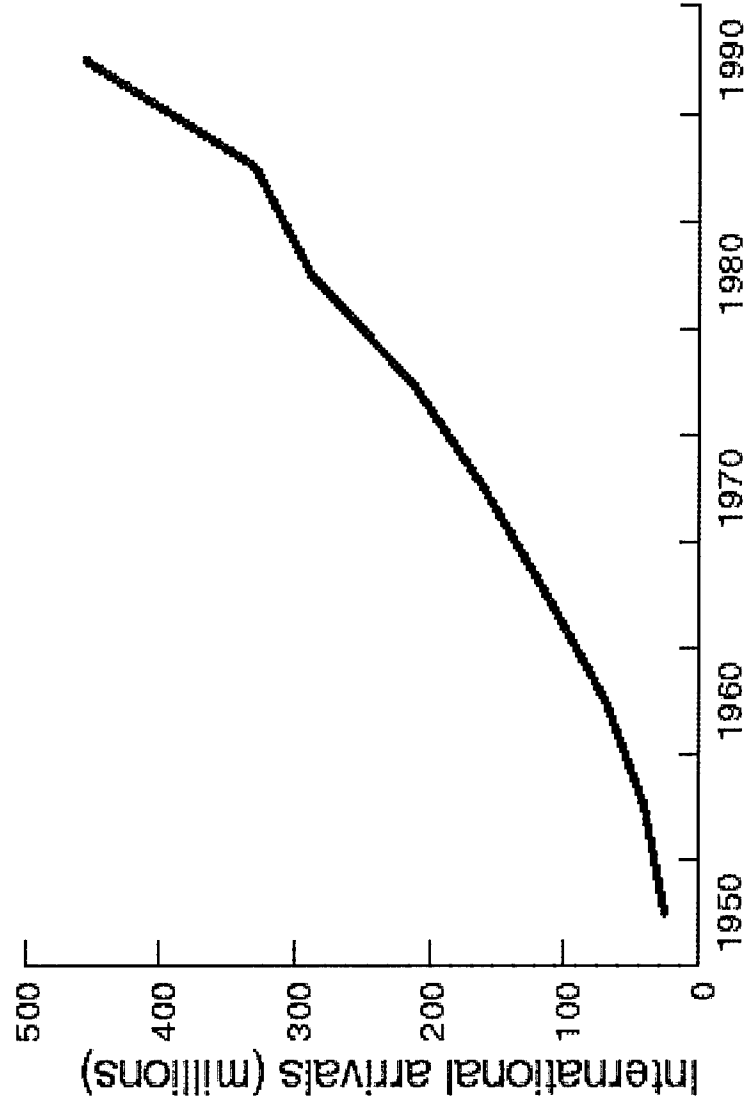
The globalizing economy has many extraordinary aspects—detailed in this report and others. The next chart illustrates one of them.

Economic Futures

- Vast positive prospects: from \$40 trillion (1998) Global GDP could
 - double (\$88 trillion) in real terms
 - triple (\$115 trillion)
- An emerging multi-polar economic world (US, Europe, Asia)
- Integration trend is different now
 - ratio of trade to GDP at historically high levels and growing
 - far more service sector integration
 - Explosion in international capital flows
- Corporations increasingly multinational, global
- Major per capita income disparities
- Economic interdependence will create greater US vulnerabilities too (shocks)
- Potential for major have-not conflicts, terrorism
- Resistance to integration
 - cultural
 - job risk

International travel has increased more than 20-fold, mirroring and stimulating the rise of a globalizing economy over the last half-century. This trend seems likely to increase and accelerate.

Increased international travel



Source: World Tourism Organization, 1992

The Strategic Assessment Group of the CIA developed what was judged to be a generally sensible set of economic projections for the Commission. The facing chart is a baseline for today (1998) and several alternative futures through 2025—all in trillions of 1998 dollars (\$T).

From a 1998 actual baseline global GDP of about \$40 trillion, the Core projection by 2025 features real growth to about \$88 trillion—an average annual global real annual growth rate of 3%.

A more pessimistic CIA projection, one that in effect presumes a more protectionist scenario, puts global GDP at about \$65 trillion by 2025.

A very positive projection, on the far right of the graphic, posits an increasingly well-managed acceleration of global trade and investment (an average of 4% real GDP growth per year) and puts global product at \$115 trillion (again in 1998 dollars).

While the US position diminishes as a share of the overall pie in each of these alternative futures, AT THE SAME TIME, in absolute terms (real GDP) the US is also better off in each than today. In short, real growth, an expanding pie. There are more pessimistic scenarios. Potentially much worse.

You will recall that The Asian “Economic Flu” presented significant challenges not long ago. While The United States economy has institutions and policies in place today that are vast improvements over those of the depression years of the 1930s, much of the rest of the world, especially the developing world, is still on far shakier ground.

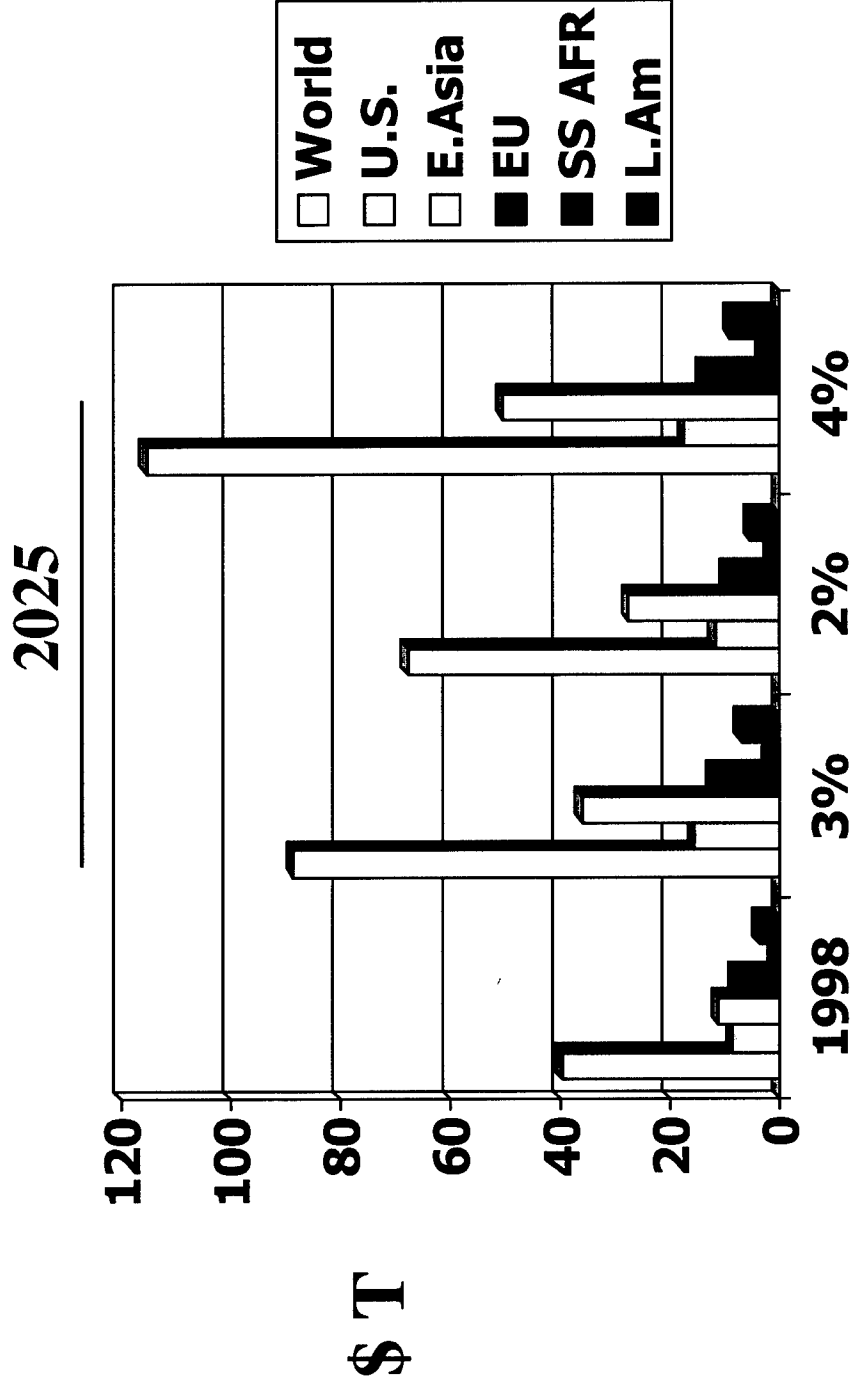
So, the group considered some darker, prolonged global recession/depression possibilities. And they were judged to be possible, and likely to require significant, sustained leadership and hard work to avoid. But they were also deemed less likely than the Core projection or the alternatives explicitly charted here.

Amidst what the study group considered to be a likely generally very positive, real growth future for the US and for the global economy, several undersides were also noted...

From significant environmental problems—given faster and faster demand for fossil fuel in developed as well as developing countries—such as the horrendous situation in China even today, for example, with the great specter of much more smog, filth, and vast medical problems ahead for that increasingly populous, urbanized, rapidly developing part of the world...TO THE MANY HAVE NOTS.

Global/Regional GDPs (1998—2025)

(1998 \$ in Trillions)



Source: CIA(SAG)

While, yes, increasingly multinational, global corporations will help bring major new job opportunities to now poor regions, note that in 1987 there were about 2.5 billion people living below US\$2 per day. Last year, there were about 2.8 billion. (The poverty level definition in the US, for comparison, is less than \$10/day.)

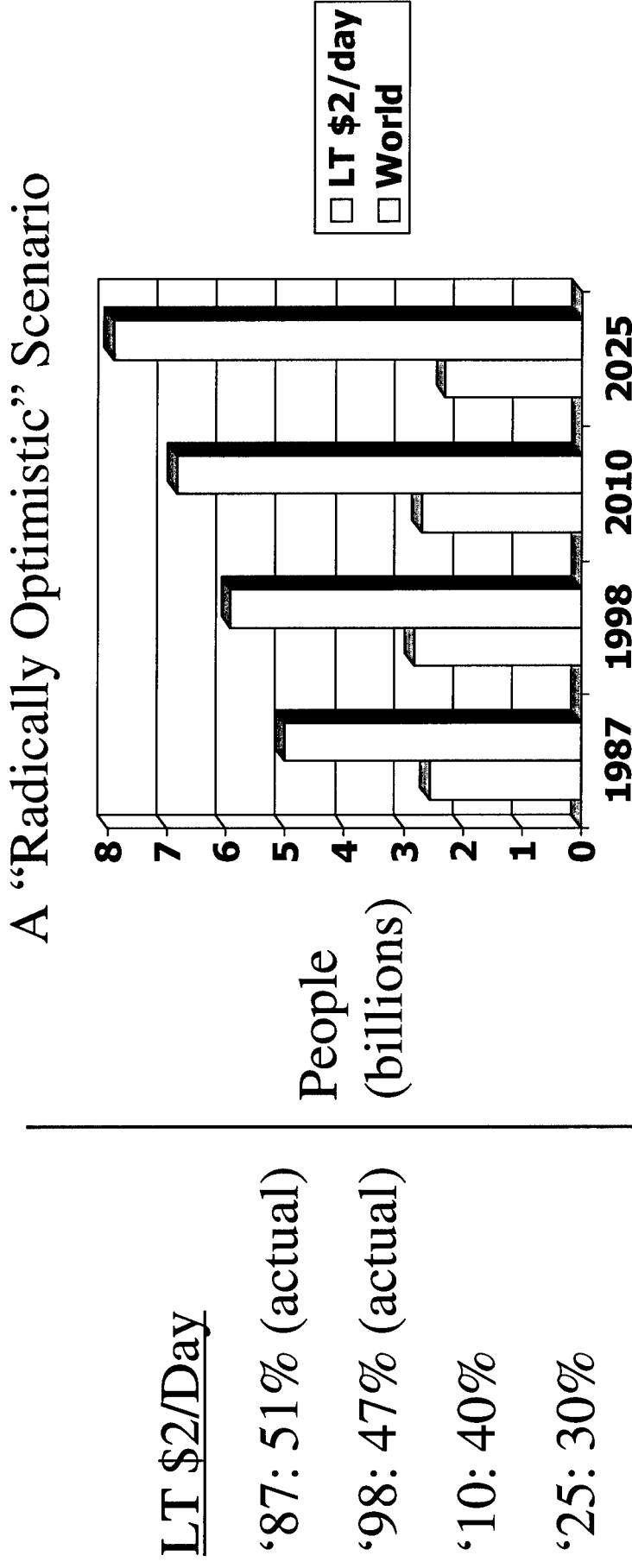
The way things are going, by 2025 there will still be very great economic disparities.

Even under the radically optimistic scenario shown here, there would still be more than 2 billion people living in squalor, disease, and ignorance in 2025.

These are the many NO NETTERS I referred to earlier.

So economically, the picture is mixed: Extraordinary possibilities for real growth, significant progress in standards of living and economic opportunities, but a vast array of challenges as well.

Poverty and Population, 2025?



Sources: US Census Bureau; UN

Today, the US is the sole superpower in the world—militarily, economically, and in S&T.

The political group's baseline projection is that by 2025 the US will still be predominant on many dimensions. But the world will be more multipolar (US, Europe, Asia (China)). There will be more global institutions and areas of significant cooperation, but the UN will still be weak. There will be a diffusion of power and of technological means over the next several decades, an erosion of borders, and many pressures on states.

US alliances are expected to be looser, with more coalitions of the willing. Some major states could fail, with significant disruptions (Russia, China?) AND cultural/nationalist backlashes to globalization and to US and Western influence and intervention. Ethnic and religious conflicts are also likely to continue.

Many potentially angry, frustrated actors will seek to do damage.

And yet, amidst all this, with careful, selective US engagement and leadership, some significant expansion in the zone of democratic peace seems very plausible in the baseline projection.

Baseline Socio-Political Future

- US still predominant on many dimensions
- More multi-polar (US, Europe, Asia (China))
- More global institutions, areas of cooperation. UN still weak
- With US engagement, expanding zone of democratic peace
- Diffusion of power and of technological means; erosion of borders; many pressures on states
- Alliances looser; more coalitions of the willing
- Some major states could fail, with major disruptions (Russia, China?)
- Cultural/nationalist backlashes; ethnic, religious conflicts
- Many angry, frustrated individuals and groups seeking to do damage

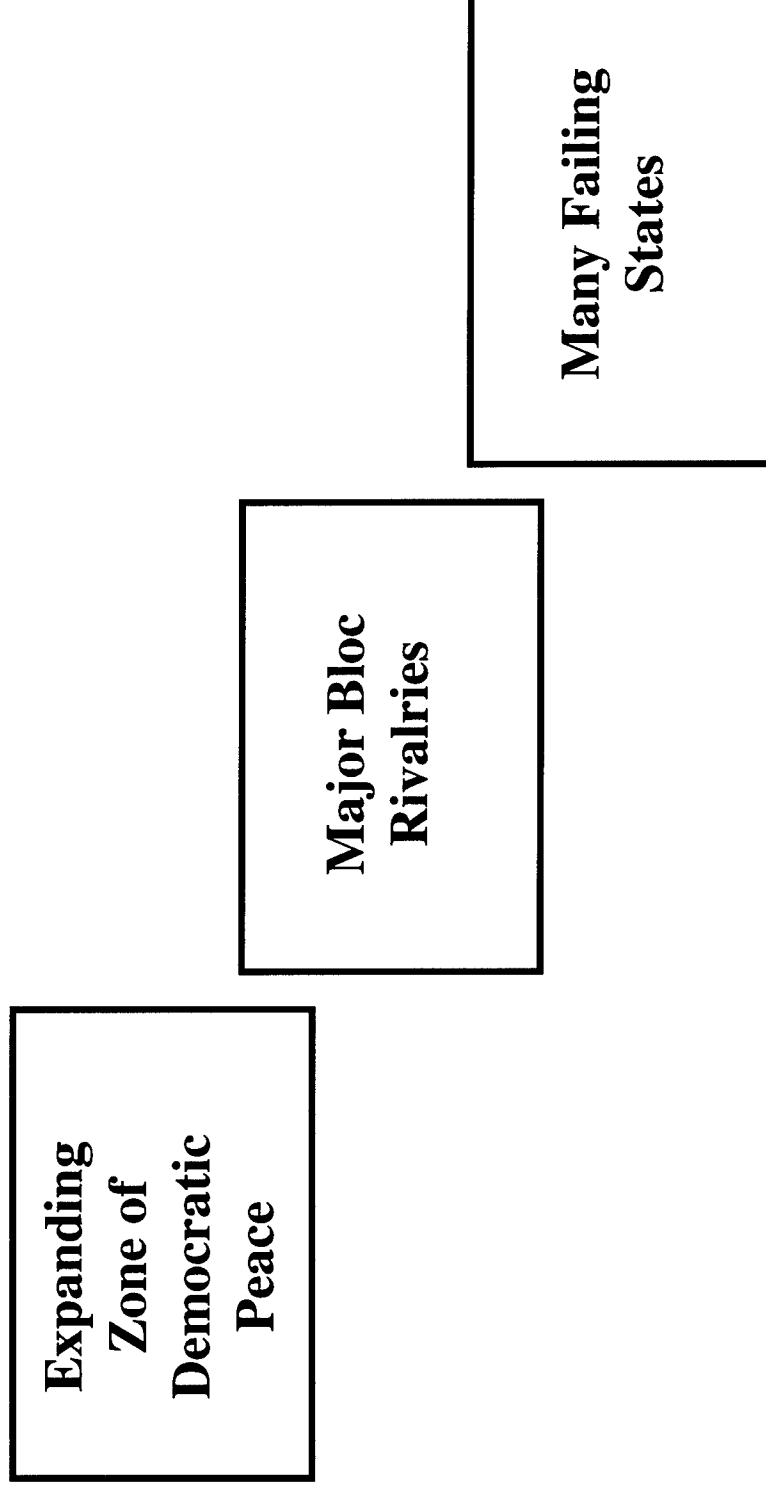
Several types of socio-political alternatives seemed plausible to the group.

On the upside: An even more Rapidly Expanding Zone of Democratic Peace with stronger political cooperation and openness, rapidly accelerating democratization, stronger global integration, stronger prosperity—in line with the 4% econ growth scenario discussed earlier, And less conflict than in the baseline.

Alternatively, Major Bloc Rivalries with relatively weak global political cooperation, and protectionism more pervasive. In this type of case, democratization stalls or weakens, global integration weakens, prosperity is very uneven—perhaps the 2% growth scenario, and there is relatively more conflict.

Or... a great many Failing States: Numerous states fail... fragment; A rise of very strident nationalisms, religious wars, a smaller zone of democracy, and a relatively small zone of “Haves integration.” Prosperity is extremely uneven—the 2% or less scenario—and much more conflict.

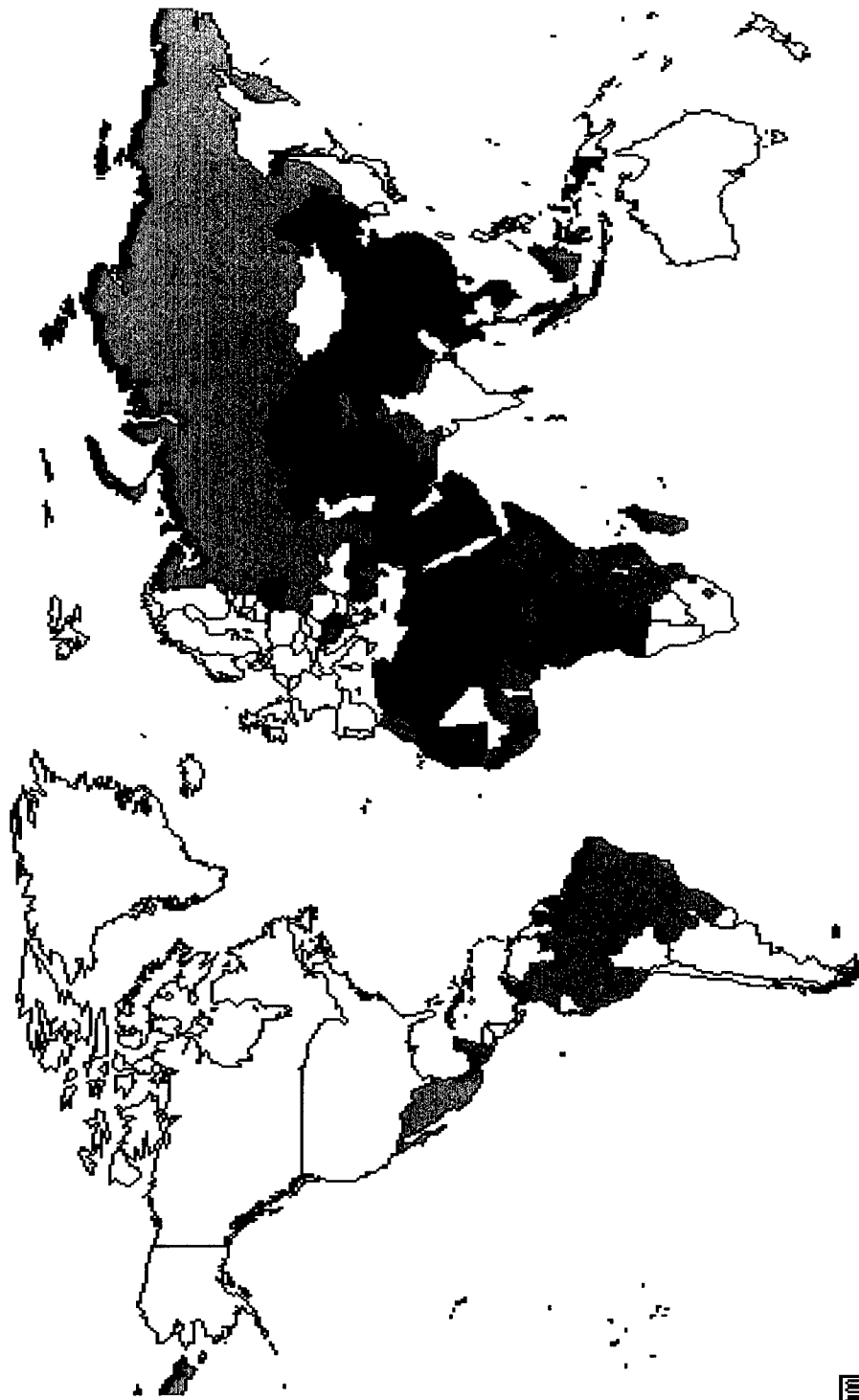
Some Possible Socio-Political Futures



For a global political conditions benchmark today, consider the MAP OF FREEDOM 1999 from the well-respected Freedom House. Of the 191 countries in the world shown here...Freedom House says that about 88 (46%) are "Free" and can be said to respect basic human rights and political freedoms.

An additional 53 (28%) are "Partly Free," with "some abridgments of basic rights and weak enforcement of the rule of law," while 50 countries (about a quarter of the world total) are "Not Free" and suffer from systematic and pervasive human rights violations. In these states, says Freedom House, "Unspeakable crimes continue to take place everyday."

For perspective, the countries Freedom House judged to be the 13 "worst violators" of basic political rights and civil liberties among these 50 are Afghanistan, Burma, Cuba, Equatorial Guinea, Iraq, Libya, North Korea, Saudi Arabia, Somalia, Sudan, Syria, Turkmenistan, and Vietnam. These 13 states are joined by the territories of Kosovo and Tibet.



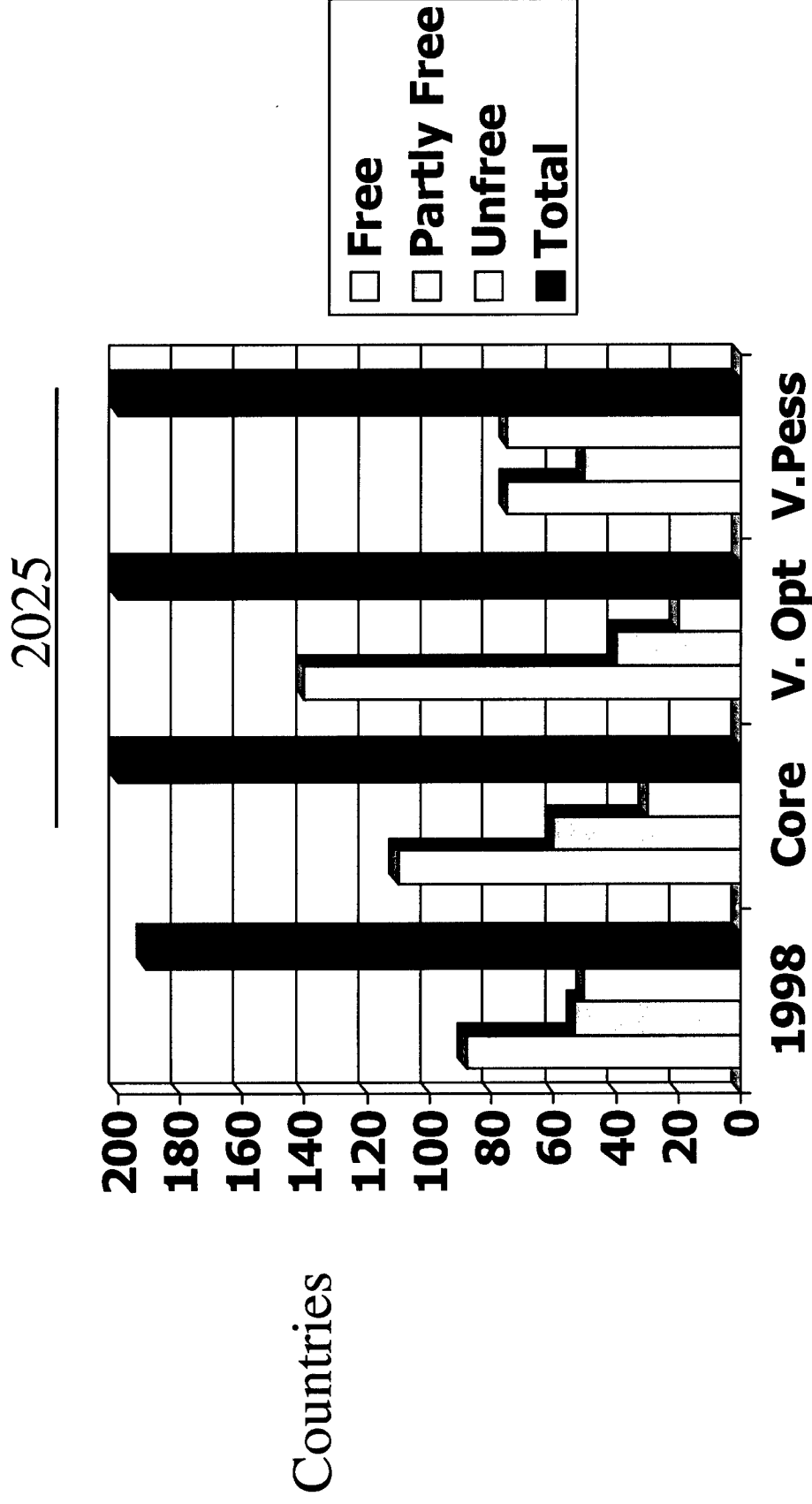
FREE
PARTLY FREE
NOT FREE

THE MAP OF FREEDOM 1999

The Study Group's Core projection for 2025 may be said to look something like what is shown here as the Core estimate in 2025—110 free countries. In a radically optimistic case, 70% might be free. And in a very pessimistic case about a third (37%) might be free.

Such differences in political conditions then would surely be quite real—as real, potentially, as the difference between political conditions in North and South Korea today, between Mainland China and Taiwan, Serbia and Poland, or the former Zaire and South Africa.

Global Political Conditions (1998-2025)



1998 Source: Freedom House

Turning to the Military Security arena per se, the study team foresees an UNPRECEDENTED range of threats and actors.

Deterrence against WMD is not as assured, and accidental launches may be more likely under failing state conditions.

Allies and friends may not be as willing to help.

And these may be considerable turbulence.

Consider for a moment some of the biological warfare/terrorism threats. Biological agents such as anthrax, tularemia, cholera, Venezuelan equine encephalitis, and the plague can get through deliberately.

Now consider this---

Military-Security Futures

- An unprecedented range of threats and actors
 - Non-state actors, individuals, and groups will have at their disposal alarming means of destruction
 - Interstate wars will not disappear
 - ships, tanks and planes will remain the most relevant modus operandi
 - Intrastate violence by far the most common form
 - often genocidal
 - need not disrupt core strategic interests of major powers
- Catastrophic terrorism more likely, insidious
 - Bioterrorism most likely
 - Mass disruption
 - US, other open societies especially vulnerable
- Outer-space and cyberspace threats
- Deterrence against WMD not as assured
- Allies and friends may not be as willing to help
- Considerable turbulence

“Over 400 million people come into the US every year, including returning American citizens, and there are over 800,000 aircraft arrivals. If someone wants to bring in a vial of anthrax, they’re probably going to get in.”

Nine million large cargo containers arrive by ship from abroad every year. Says a customs official:

“We can inspect only 2 or 3 percent of them for possible terrorist weapons. Altogether, we can’t find the proverbial needle in the haystack.”

One biological agent I didn’t just mention may be the most lethal of them all: Ebola.

Porous Borders

“Over 400 million people come into the US every year, including returning American citizens, and there are over 800,000 aircraft arrivals. If someone wants to bring in a vial of anthrax, they’re probably going to get in.”

“9 million large cargo containers arrive by ship from abroad every year. We can inspect only 2 or 3 percent of them for possible terrorist weapons. Altogether, we can’t find the proverbial needle in the haystack.”

A US customs official

Ebola may look like a stylized Mickey Mouse Head and ears, with a very long mouse-tail. But this filovirus is a very different, enormously hostile life form. Indeed, it may be the second most lethal adversary of human beings on this planet, second only to other human beings.

It could be introduced into the United States deliberately or by accident and become a pandemic, what with the accelerating international travel, commerce, and biotech experimentation mentioned earlier.

Ebola Zaire



Bo Niklasson, professor and member of the Swedish medical team that visited Kikwit, Zaire during the 1995 Ebola outbreak. Niklasson wearing a Racal spacesuit, Kikwit, Zaire 1995

Are we prepared for deliberate terrorism? Are we prepared for pandemics, deliberate or accidental?

With no known cure for ebola now, how do we identify and contain the spread of such a killer? DoD and the US government are working on these problems.

But could anything remotely like the Spanish Flu Pandemic of 1918, which killed half a million Americans in 6 months and 20 million worldwide in very short order, occur again, with Ebola, with Marburg Virus, or some other?

[Ten years ago it did almost happen, starting in the infamous Monkey House in Reston—See “The Hot Zone” by Robert Preston].

This is not necessarily a military problem per se, but it sure seems like a national security risk.

The study group and the commissioners believe that much higher visibility, and emphasis, needs to be given to such problems—WMD, potential pandemics in the decades ahead, and weapons of mass disruption.

Pandemics: Not Just Terrorism

“Ebola has the potential to go airborne and be spread like the flu.”

Peter Jahrling, USAMRIID virologist

“...an airborne strain of Ebola could emerge and circle around the world in about six weeks.”

Gene Johnson, USAMRIID

“People don't realize until their house is on fire that the town hasn't bought enough fire trucks. We'll be seeing more Ebola. Population is increasing in Africa; so are incursions into the virus's habitat. Sooner or later somebody's going to haul it back out of the jungle.”

Anthony Sanchez, Ebola researcher at CDC

A World Astir

Overall, the vast opportunities, vulnerabilities, and threats we have just surveyed will emerge and play out in a variety of ways, and regions, in the years ahead.

The Phase 1 Report tries to distill and synthesize what we heard regarding plausible futures of major regions—upsides and potential

downsides—through both a series of conferences (that I organized) and a set of structured trips to the majority of these regions.

Here I offer just a few major themes for several of the regions.

A World Astir

- Greater Europe
- East Asia
- Greater Near East
- Sub-Saharan Africa
- The Americas

Greater Europe will be as important as ever, in security terms, in economic terms, in any future zone of democratic peace.

There are some significant potential problems, perhaps especially with Russia.

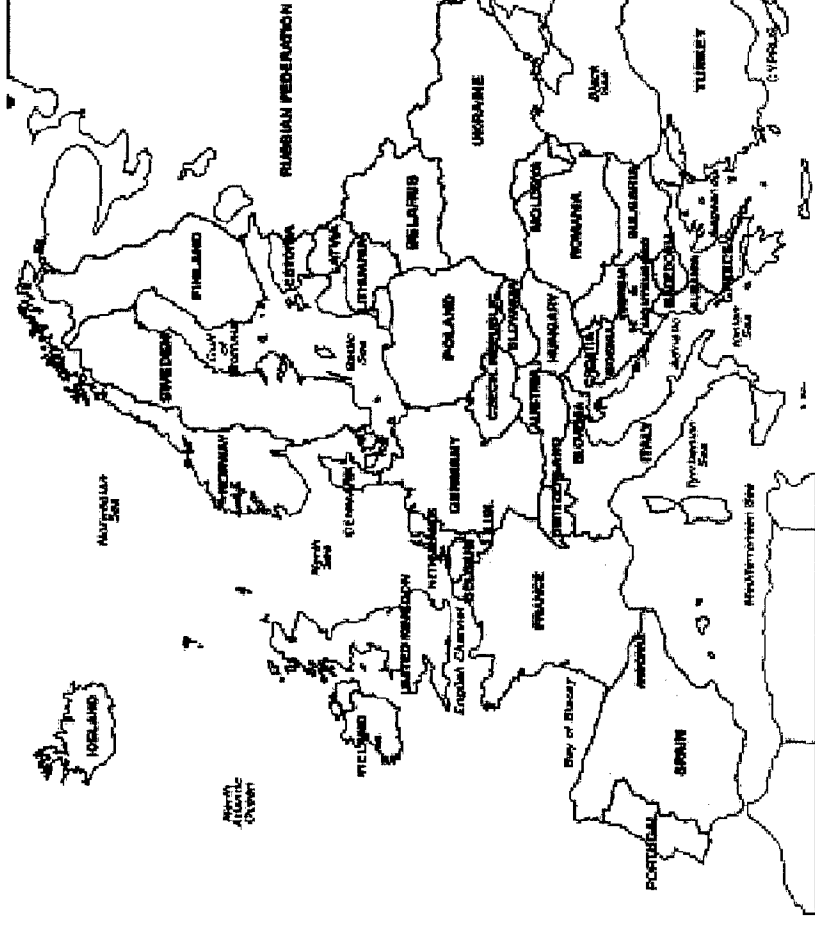
The study group sees the potential failure of Russia—beyond the near-term tragic developments such as in Chechnya. It may well decline into anarchy and chaos, a most ominous potential development. The huge talents of many of its people will go badly underutilized.

But more alarming is the RISK of loose nukes, other WMD, or accidental nuclear launches (misperceptions and miscalculations by a very weak regime dominated by ruthless, corrupt leaders; criminals; private oligarchs; desperate, unpaid military leaders; and ultra nationalist xenophobes).

It is generally believed that MUCH more attention needs to be paid to Russia in the years ahead. (As an aside, I participated recently at Gen Andrew Goodpaster's invitation in a "NATO at 50" Conference at the Wye Conference Center and heard many similar concerns raised about Russia by many participants, including General Goodpaster, Gen Brent Scowcroft, Gen Wes Clark, and others such as Peter Rodman, Susan Woodward, Bob Kennedy of the Marshall Center, and Susan Eisenhower.)

Greater Europe

- Important as ever to US
 - Huge economic, scientific, cultural partner
 - Western Europe key part of zone of democratic peace
- Serious potential trouble
 - Russia falls apart or is reborn in authoritarian, imperial posture
 - Peripheral state problems, instabilities
 - West European institutions fail, sparking serious tensions with US



In E. Asia, the last 25 years have seen truly phenomenal positive developments, economically and to some extent politically—as in Japan, S. Korea, and Taiwan. The study group believes that the next 25 years hold even greater additional promise—for positive, real growth throughout the region—a better standard of living, jobs, education.

Visiting Shanghai and Beijing earlier this year, I spoke to many Chinese who are working eagerly to earn money for themselves and their families in the increasingly capitalist society that is emerging rapidly in China.

The study group also believes that such a positive future will take a lot of hard work and regional as well as US leadership. The region could become a zone of predominately peaceful relations among mostly democratic states, with strong commercial, scientific, and cultural links to the rest of the world. It may become the largest global economic grouping, offering many markets for US goods and services and many valuable products for US and global use. There could be a major regime change in China, for the good.

Yet, even under the best of circumstances, significant problems and tensions will persist. Of all the potential problems, China was judged to be far and away the most portentous (and controversial)—so huge and dynamic it is bound to affect powerfully the region and the globe. It may have a larger GDP (PPP) than the US.

In the view of DIA Chief VADM Thomas R. Wilson, China still lacks the ability to make an all-out attack on Taiwan because of its weakness in transporting significant amounts of heavy weapons long distances, but “they are clearly on track to become a stronger regional or greater than regional competitor in the future.”¹ It is strengthening its space and missile capabilities; it is actively seeking to become a world-class power in many ways—most notably economically.

Nevertheless, the group concluded that Chinese interests will not necessarily be irreconcilable with those of the US.

(The vast majority of Chinese people today, as best I can tell, don’t march to Beijing’s tune, or to communist ideology. They generally try to ignore it. They are wary of the outside world, but they are trying to get rich in the new, more liberal economic environment that prevails throughout more and more of the country.)

At the same time, there are also many other ways things could go wrong...conflicts in the region (Korea, Taiwan, political/economic regression in SE Asia, Japanese economic failure and then extremism, WMD proliferation; a regional arms race, say, between Japan and China, including Nukes, especially if the US should decide to fold the nuclear security umbrella we now hold for Japan. China could break up, which could induce a huge amount of uncertainty, chaos, and potential for violence. Even now, the center is not in as much control as it may appear from the outside.

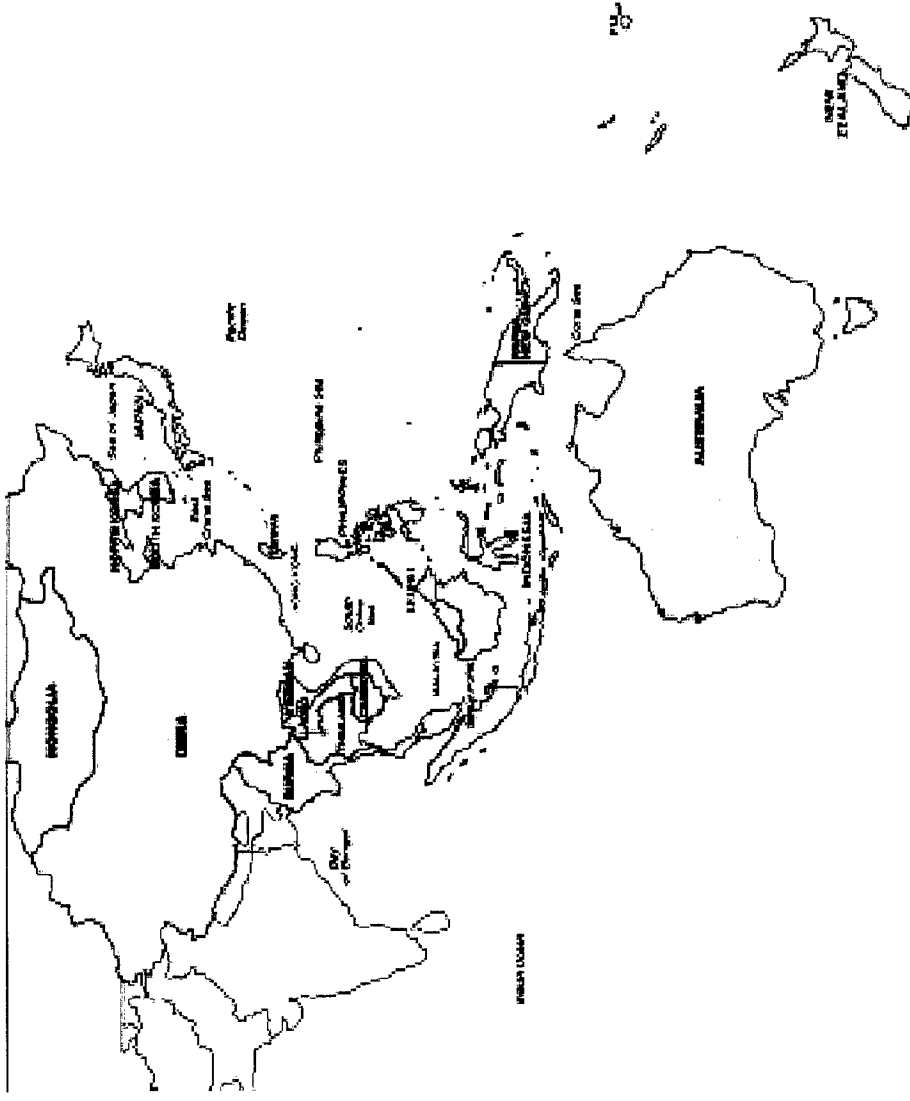
¹ John Donnelly, Verbatim: Once Around the World with the CIA Chief, *Defense Week*, November 22, 1999.

East Asia

■ Stunning positive changes over last 25 years ... only a foretaste of future achievements

■ Potential problems

- China
- Japan
- Korea
- Indonesia



This is an area of potentially great promise, but probably greater turmoil in the years ahead, religious tension, modernization resistance, wide opposition to what we regard (and the Universal Declaration of Human Rights lays out) as fundamental human rights (e.g., suffrage, due process, equal opportunities for women, religious minorities).

Yet the region has and is expected to have many moderates as well as extremists—it is certainly not all of a piece.

In the years ahead, much of the world, including China, will want to strengthen their own ties toward this strategically crucial area because of its oil reserves.

Rogue and terrorist possibilities in this region are very significant.

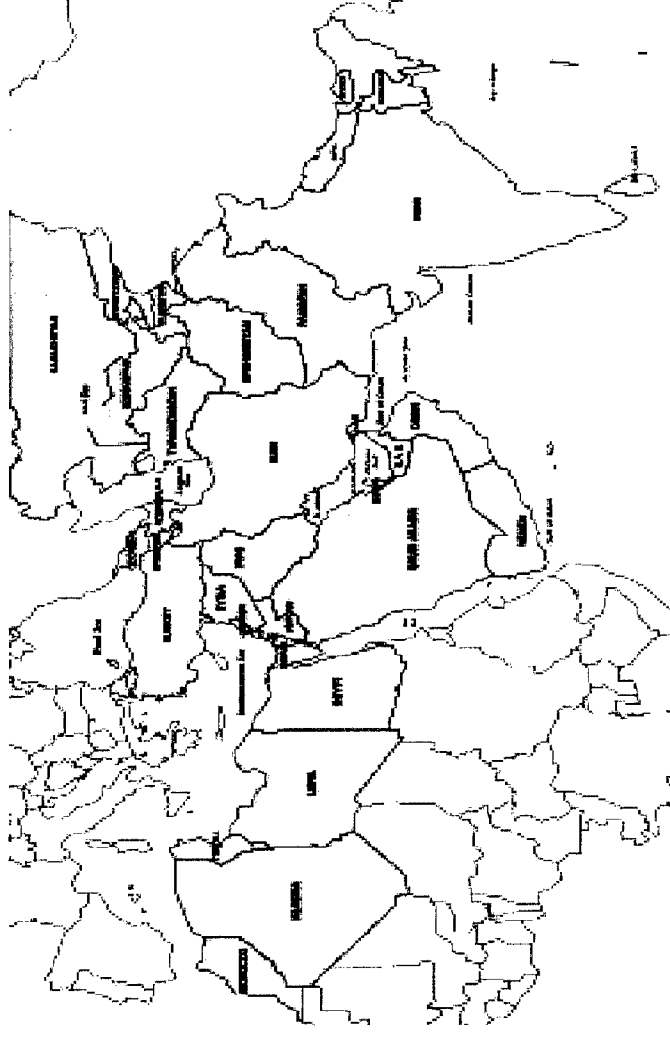
And how soon will it be before Iraq and Iran have significant nuclear capabilities?

There are so called “Youth bulge” problems (many unemployed young men dissatisfied with the status quo, looking for people, and powers, to wreak revenge upon). And in a decade, the pro-Western regime in Saudi Arabia could be overthrown, from the inside, by followers of Osama Bin Laden.

For Phase 1 details on possible scenarios in these regions and in the Americas and Sub-Saharan Africa, I encourage you to visit the Commission’s Web site, or to see me.

Greater Near East

- Potential for positive breakthroughs
- Stresses from economic integration, tumult, on traditional cultures
- Demographic problems
 - rapid population growth, youth bulge
- Global energy dependence on this region will continue, may increase
- Likely to be very volatile area
 - proliferation
 - terrorism



US Domestic Future

On the bright side—

- America will be wealthy and healthy, certainly by global standards though perhaps somewhat “grayer.”
- US GDP could double by 2025 in real terms; US scientific and technological preeminence will continue—though by how much will be a function of policy and priority.
- Our edge in military, and military-related, technologies will almost certainly endure, but again, by how much will be a function of priorities.
- The US economy will be increasingly globalized.
- There will be more of us, and we will be more diverse, which has been a traditional American strength.

On the not so bright side, shown here are some of the concerns and uncertainties raised by the study group subteam:

- Civic engagement at the national level might decline significantly.
- National cohesion could suffer (illegal immigration, language, racial gaps) or be bolstered.
- An education crisis might develop or the public might be indifferent toward problems with public education in poorer areas.
- The level of social dysfunction may increase owing to child-rearing trends.
- Some individual freedoms (guns, other lethal weapons) might be limited in the face of terrorism, extremist groups. This could prompt domestic extremism in response.

Will there be growing cultural distance between America and its military? And given emerging domestic threats, will there be very divisive arguments over the military’s role inside the US?

US Domestic Future

- America will be wealthy and healthy
- GDP could double in real terms by 2025
- US scientific and technological preeminence will continue
- Edge in military, and military-related, technologies will endure
- Economy increasingly globalized
- Increasing population and diversity
- Civic engagement?
- National cohesion?
- An education crisis?
- Increased level of social dysfunction?
- Individual freedoms (guns, other lethal weapons) to be limited in face of terrorism, extremist groups?
- Distance between America and its military?
- Divisive arguments over military role at home?

Worlds in Prospect

Taking all of these major possibilities together, the Senior Study Group sees four broad types of worlds in prospect.

Two positive: 1) A democratic peace, with expansion of today's democratic core; and 2) a future labeled Globalization Triumphant.

And two negative: 1) "Protectionism/Nationalism"—a world of much more inward, defensive states; and 2) "Division and Mayhem"—real chaos, violence, and anarchy, with things really falling apart.

It was the general consensus of the study group that, just as the world today evinces both integration and fragmentation, future trends will combine to produce a patchwork of consequences rather than any single, logically coherent whole.

Worlds in Prospect

■ A Democratic Peace

- democratic norms predominate
- no sharp ideological divisions; cultural differences narrowing
- advanced levels of political cooperation

■ Protectionism and Nationalism

- global economic integration stalls
- rise of regional power blocs
- rise of strident nationalism

■ Globalization Triumphant

- unprecedented economic growth
- increasing prosperity, declining income disparity
- no major conflicts
- surge of democratization

■ Division and Mayhem

- economic growth plummets
- technological diffusion outpaces security
- many states fragment
- few, failing conflict resolution mechanisms

The Supporting Analyses conclude with some predictions:

A Democratic Peace could exist for states that today are firmly democratic with market-based economies, although a more pessimistic future is also possible for them (that is—us).

A more pessimistic future is, as of now, much more likely for the rest of humanity, as in Russia, China, India, Indonesia, and many others.

And the question: Can the Haves remain isolated from the pain, the refugees, the diseases of the Have-nots?

Predictions and a Question

- A democratic peace could exist for states that today are firmly democratic with market-based economies, but a more pessimistic future is also possible for them
- A more pessimistic future is, as of now, much more likely for the rest of humanity, e.g.,
 - In Russia, China, India, Indonesia, the Philippines, Vietnam, North Korea, Malaysia, Thailand, Egypt, Iran, Turkey, Pakistan, Mexico, Brazil, South Africa, and Nigeria
 - The prospect for major interstate war in some of these domains “would be large”
- Can a “Zone of Prosperity and Relative Tranquility” remain isolated from the pain, the refugees, the diseases of the Zone of Hardship and Turmoil?

To recap quickly, the commissioners took from these various supporting analyses a dozen specific “beliefs about the future” (bets?) through 2025:

1. The US will be a primary shaping force, on many dimensions:
2. How America evolves will affect how it shapes foreign policy.
3. There will be great S&T progress, but some will benefit far more than others.

4. Fossil fuels will still be the primary global energy source.
5. Great economic growth will occur, but widespread poverty will persist.

Commissioners' Specific Beliefs

- 1. The US is likely to remain a primary economic, political, military, and cultural force through 2025**
- 2. Direction of American society and politics will shape US foreign policy goals and capacities**
- 3. S&T will advance and become more widely available, but benefits will be less evenly distributed**
- 4. Energy will remain largely based on fossil fuels**
- 5. Major economic growth, but disparities will increase, and widespread poverty will persist**

6. The international aspects of business and commerce (trade, transportation, telecommunications, investment and finance, manufacturing, and professional services) will continue to expand, rapidly.
7. The private, not-for-profit sector will continue to globalize and to grow in importance, numbers, and international stature.
8. Though it will raise important issues of sovereignty, the United States will find it in its national interest to work with and strengthen a variety of international organizations.
9. The US will be **MILITARILY PREEMINENT**
10. Weapons of mass destruction and disruption will proliferate rapidly to a wider range of state and non-state actors
11. We should expect conflicts in which adversaries will resort to forms and levels of violence shocking to our sensibilities
12. As the United States confronts a variety of complex threats, it will often be dependent on allies, but it will find reliable alliances more difficult to establish and sustain

Specific Beliefs

6. International business will expand
7. NGOs will grow in importance, numbers, and international role
8. US will find it in its interest to strengthen many international organizations
9. US will remain the principal military power in the world
10. WMD and WM “Disruption” capabilities will proliferate to a wider range of actors
11. Conflicts with ever more shocking forms and levels of violence
12. US will find reliable alliances harder to establish and sustain

III. Looking Ahead

The commissioners have argued in Phase 1 that good things can well happen over the next several decades, as illustrated here. The world ahead seems amenable to basic American interests and values.

A world pried open by the information revolution is a world less hospitable to tyranny and friendlier to human liberty. A more prosperous world is, on balance, a world more conducive to democracy, less tolerant of fatalism. A less socially rigid, freer, self-regulating world accords with our deepest political beliefs of limited government and equal opportunity and with our central political metaphors—the checks and balances of our Constitution, the “invisible hand” of the market, our social creed of *e pluribus unum*, and the concept of federalism itself.

The commissioners also argue that this world is not assured, saying much of the world will resent and oppose us for our preeminence and will often see us as exercising power with arrogance and self-absorption.

The Commission predicts that Americans will be increasingly less secure in the years ahead, *much less secure than they now believe themselves to be.*

■ The most serious threat to the US may be surprise attacks on American cities by sub-national groups using genetically engineered pathogens OR well-planned cyberattacks on our air traffic control system.

■ There are likely to be assaults on international economic infrastructure, and several major countries may fail or collapse.

■ Threats to US security will be more diffuse, harder to anticipate, and more difficult to neutralize. Deterrence will be less assured; boundaries will blur between homeland defense and foreign policy, between sovereign states and a plethora of protectorates and autonomous zones, and between national and other loyalties (both more local and more global).

■ While major conflicts between powerful states will decrease, conflict—severe, savage, shocking—will likely increase.

■ In this context, the US needs clear objectives and a coherent strategy both to deal with dangers and, simultaneously, to promote the opportunities ahead.

Toward Phase 2

- The world ahead seems amenable to basic American interests and values
- This world is not assured
- Americans will be increasingly less secure, *much less secure than they now believe themselves to be*
- Threats to US security more diffuse, harder to anticipate, more difficult to neutralize, deterrence less assured
- US needs clear objectives and a coherent strategy to deal with dangers AND opportunities ahead

A number of studies in the last few years have examined at least some of the dimensions addressed here.

The CORM (1995), the NIC, Global Trends 2010(1997), the QDR (1997), NDP (1997),

ongoing Joint Staff efforts such as by DIA (ongoing), Future Threats and Challenges: 1998–2018 (11/98), and JSRs (ongoing).

One example is the NDP.

What's New ?

Prior or ongoing studies, commissions:

- CORM (1995)
- NIC (Ongoing)
- QDR (1997)
- NDP (1997)
- DIA (Ongoing)
- JSRs (Ongoing)

The NDP projected that over the next several decades our interest will be challenged in many ways, as shown on the accompanying slide.

NDP: “Transforming Defense— National Security in the 21st Century”

“Our interests will be challenged in new ways... We are likely to have to cope with the penetration of our information systems. Rogue states and terrorists, perhaps armed with WMD, may attempt different kinds of attacks, not only on our forces abroad, but in our homeland, in urban areas and perhaps space.”

“The nation’s military, which has done a superb job of protecting US interests in the past, may not be able to solve these future problems without significant change.”

Press Release of the National
Defense Panel, December 1, 1997

So what's new? In Phase 1, the commission has added weight and emphasis, as a *blue ribbon*, *bipartisan* commission, to important prior findings, for instance, an increased risk of unconventional threats, including small actors (state and non-state). Many Americans now underestimate the seriousness of emerging problems (homeland, WMD, infrastructure attacks, state failures). New types of capabilities are likely to be needed:

- Prevention and response capabilities are both important
- There are major positive opportunities ahead (not all zero-sum, conflict/threat focus)

In subsequent phases the Commission will seek to assemble a bipartisan NSS and may recommend changes in the law to implement the strategy.

Phase 2 of the Hart-Rudman commission, underway now, may lead to some very useful recommendations for US government action:

- Seize the moment in a bold way; use engagement, not isolation

- Press positive sum options while hedging against darker scenarios (terrorism, protectionism, proliferation)
- Enable non-governmental bridges as much as possible among peoples around the world
- Build security structures to enable enforcement of norms and laws that are fair and respect individual human rights, property rights to allow more risk taking
- Promote security at home in a variety of ways—from NMD to a frontal attack on other potential WMD and WM Disruption problems
- Recommend a new approach to dealing with both Russia and China
- Craft an *integrated set* of strategic approaches, akin to that SecNav Danzig proposes: from Cooperation—to Dissuasion—to Deterrence—to Disabling Capabilities—to Dominance in Conflict—to Consequence Management

What's New? Hart-Rudman Commission ...

- Adds weight and emphasis, as a blue ribbon, bipartisan commission, to important prior findings:
 - An increased risk of unconventional threats, including small actors (state and non-state)
 - Many Americans now underestimate the seriousness of emerging problems (homeland, WMD, infrastructure attacks, state failures)
 - New types of capabilities needed
 - Prevention and response capabilities both important
 - Major positive opportunities (not all zero-sum, conflict/threat focus)
- Will recommend a bipartisan national security strategy to deal with challenges and opportunities across a wide spectrum
- May recommend a significant restructuring of governmental and other tools to implement it

I suspect that, despite all the Commission's effort, Phase 2 will come up short—in terms of articulating which tools, and which combinations of tools, have worked, or could work, under what circumstances. The effort just lacks the resources needed to do that job.

Indeed, no government-wide organization exists to promote and conduct long-term scientific analyses of the efficacy and costs of creating and using various instruments for the advancement of US national security interests and objectives in the 21st century, such as

- Military power, Sanctions, Assistance, Information about the US/ West, Debt relief, (Trade status in WTO), and Covert instruments.

In my view, a federally chartered organization should be created and assigned the task of conducting such ongoing studies.

Again in my view, IDA could and should be a strong contender for such a role.

Observations

- Phase 2 may turn out to be a great step forward, but it is likely to have too little time, resources, evidence base
- No government-wide organization exists to promote and conduct long-term scientific analyses of the efficacy and costs of creating and using various instruments for the advancement of US national security interests and objectives in the 21st century
 - military power
 - sanctions
 - assistance
 - debt relief
 - covert instruments
- A federally chartered organization should be created and assigned the task of conducting such ongoing studies

REPORT DOCUMENTATION PAGE		Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22203-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE December 2000	3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE The US Commission on National Security/21st Century ("Hart-Rudman"): Overview and Observations on Phase 1		5. FUNDING NUMBERS Independent Research Development	
6. AUTHOR(s) James S. Thomason			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 1801 N. Beauregard Street Alexandria, VA 22311		8. PERFORMING ORGANIZATION REPORT NUMBER IDA Document D-2541	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 1801 N. Beauregard Street Alexandria, VA 22311		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited.		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The US Commission on National Security for the 21st Century—informally known as "Hart-Rudman" for its co-chairs, former senators Gary Hart and Warren Rudman—was chartered by Defense Secretary William Cohen in the summer of 1998 to study several critical national security issues. In September of 1999 the commissioners provided the Secretary with their first (Phase I) report, which seeks to characterize the future security environment the United States will face over the next 25 years. The author served as a full-time member of the senior study group supporting the commission during Phase I. In this briefing he first describes highlights and some supporting details of the Commission's Phase I work. Next he offers his views on what the Commission has added to the national security debate. The author concludes with several observations regarding the likely contributions by the Commission and its senior study group in the remaining phases of their work.			
14. SUBJECT TERMS National security, Hart-Rudman, future security environment, homeland defense, homeland security, biowarfare, strategy, regional security, political future, economic futures, technology futures		15. NUMBER OF PAGES 116	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL